Are Finance Professors and Their Theories to Blame for the Financial Crisis?

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Although finance professors and their theories of market behavior started out in relative obscurity, they have gained prominence and attracted worldwide attention. The efficient market theory, in particular, may be said to not only describe market behavior but also influence it. But did this influence cause the recent market crisis?

My investigation into whether academic theories about the behavior of financial markets have, in turn, affected investor behavior originated in 2002 with an article I published in *Fortune*.[1] And that article evolved into a book published in mid-2009.[2] My latest twist on this topic is whether these academic theories (and their influence on investors, investment bankers, and regulators) are to blame for the recent financial crisis.

Interestingly, I am not the only one thinking along these lines. Jeremy Grantham is probably the most outspoken person arguing that it is the efficient market theory's fault that this crisis happened.[3] But others have joined the debate. Jeremy Siegel, in an article in the *Wall Street Journal* on 27 October 2009, said it is not the efficient market theory's fault because, really, it was the U.S. Federal Reserve's fault for not cracking down on the housing bubble.[4] Martin Wolf, the famous economics columnist for the *Financial Times*, wrote on the same day that, yes, it is the efficient market theory's fault because it persuaded the Federal Reserve not to crack down on the housing bubble.[5] And then Eugene Fama weighed in recently, saying that my book is fun reading but that its main premise (that his efficient market hypothesis is to blame for the financial crisis) is fantasy.[6]

In reality, my book is a story of how ideas that originated at the Sloan School at Massachusetts Institute of Technology and what is now the Booth School at the University of Chicago filtered out into the world and gained influence. The book was supposed to come out in May 2005, so it was not intended to be about this financial crisis. Nevertheless, it is a natural question to ask whether these influential ideas are to blame for the financial crisis—but first, some background.

History of Academic Finance

Benjamin Graham said in *Security Analysis*, the first edition from 1934, that the market is not a weighing machine. It is a voting machine. When Graham wrote this, he had just been through four of the worst years an investor can ever go through. So, clearly, he did not think the market was a reliable weighing machine that set prices according to value.

But then in 1962, after he had a few really good decades, at the 25th anniversary celebration of the New York Society of Security Analysts, he said:

> Neither the Financial Analysts as a whole nor investment funds as a whole can expect to "beat the market," because in a significant sense, they (or you) *are* the market. . . . Analysts do in fact render an important service to the community, . . . but this service shows itself not in spectacular results achieved by their individual selections but rather in fixing at most times and for most stocks a price level which fairly represents their comparative values. (pp. 66, 68)[7]

This presentation comes from the New York Society of Security Analysts author series held in New York City on 9 December 2009.

[1]Justin Fox, "Is the Market Rational? No, Say the Experts. But Neither Are You—So Don't Go Thinking You Can Outsmart It," *Fortune* (9 December 2002): http://money.cnn.com/magazines/fortune/fortune_archive/2002/12/09/333473/index.htm.

[2]Justin Fox, *The Myth of the Rational Market* (New York: Harper Collins, 2009).

[3]See the GMO Quarterly Letter to investors dated January 2009.

[4]Jeremy J. Siegel, "Efficient Market Theory and the Crisis," *Wall Street Journal* (27 October 2009): http://online.wsj.com/article/SB10001424052748703573604574491261905165886.html.

[5]Martin Wolf, "How Mistaken Ideas Helped to Bring the Economy Down," *Financial Times* (27 October 2009): www.ft.com/cms/s/0/38164e12-c330-11de-8eca-00144feab49a.html?catid=143&SID=google.

[6]*Fama/French Forum* (4 November 2009): www.dimensional.com/famafrench/2009/11/qa-is-market-efficiency-the-culprit.html.

[7]Benjamin Graham, "The Future of Financial Analysis," *Financial Analysts Journal*, vol. 19, no. 3 (May-June 1963):65–66, 68–70.

So, in 1962, Graham looked at the market and said that most of the time, it gets prices right.

Academic finance before the 1950s was a very anecdotal discipline. It was all about case studies. Merton Miller, an economist at what is now Carnegie Mellon, was asked to teach finance at the business school. So, he went to a couple of finance classes first. He heard one story in one class, and he thought, okay, I got it figured out. I get what the theory is here. The next class was another case, and the professor came up with totally different lessons. Miller wanted something more systematic.

A few years earlier, Harry Markowitz had come up with a systematic approach to investing that was all about balancing risk and return and looking for correlations between asset classes and for uncorrelated asset classes. Miller and his colleague, Franco Modigliani, decided to take the next step in looking for advice to give businesses about capital structure and general financial strategy. They started by assuming that rational financial markets set prices correctly, and that assumption led to the questions, What is the cost of capital for a company and what is its proper capital structure?

Next on the scene was Bill Sharpe and the capital asset pricing model. If one assumes that everybody follows Markowitz's advice, then the capital asset pricing model becomes a theory of asset pricing based on balancing risk and return. And a few years later came the crowning glory—the efficient market hypothesis.

The Early Days of the Efficient Market Hypothesis

The efficient market hypothesis started with a group of finance professors doing research—initially on technical analysis and then, later, on mutual fund performance—and coming to the conclusion that it is hard to predict the market. The next leap that was taken, mainly at the University of Chicago in the mid-1960s, was that the reason one cannot predict the market is because market prices fluctuate closely around the fundamental value of the underlying asset. So, the price is basically right.

In the late 1960s, a lot of finance scholars started coming around to this idea that even though they could not predict where the price of a stock was going, they could say something meaningful about the variance. They could predict the risk because risk is more or less constant over time. In essence, the range of fluctuations is easier to predict than where an asset price is going. This line of thinking led to the idea that the riskiness predicts the return (higher risk equals higher return), which gets us to the capital asset pricing model.

When Fama, a University of Chicago graduate student turned professor in the mid-1960s, wrote his famous paper defining the efficient market hypothesis, he proposed testing it by looking at whether stock prices moved over time in accordance with the capital asset pricing model.[8] If they did, that would seem to be good evidence that markets are, in fact, efficient. The early tests did indeed point in that direction. Even though anomalies and logical flaws started cropping up in the early 1970s, the basic message—that the market is rational—moved into academic textbooks, which affected many people who were not true believers in the efficient market hypothesis because it was their job to be smarter than the market.

The Efficient Market Hypothesis Recently

Finance professors have certainly changed their definition of what they mean by market efficiency through the years. In the late 1970s and early 1980s, they basically believed that they had proven that prices in transparent, liquid markets (such as large-cap stocks in the United States) were in line with fundamentals.

In 1985, Robert Merton—a product of Massachusetts Institute of Technology and one of the co-creators of what is now generally called the Black–Scholes–Merton option-pricing model—made a fascinating statement:

> If, however, the rationality hypothesis is sustained [and he is assuming it will be] then instead of asking the question "Why are stock prices so much more volatile than (measured) consumption, dividends, and replacement costs?" perhaps general economists will begin to ask questions like "Why do (measured) consumption, dividends, and replacement costs exhibit so little volatility when compared with rational stock prices?" (p. 40)[9]

Merton is saying that financial markets are right, so something must be wrong with all our measurements of reality.

[8]Eugene F. Fama, "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, vol. 25, no. 2 (May 1970):383–417.

[9]Robert C. Merton, "On the Current State of the Stock Market Rationality Hypothesis," MIT Working Paper no. 1717-85 (October 1985).

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The crash of 1987 cast some doubts on the efficient market hypothesis. Bill Sharpe, in an interview in the *Wall Street Journal* on 20 October 1987, said that "it's conceivable that a change in the well-informed forecast of future economic events moved the market as it did. On the other hand, it's pretty weird."[10] Clearly, academic finance was struggling a little with the efficient market hypothesis at that moment.

Within a few years, Fama was starting to climb down a little bit from his strong efficient market hypothesis stance. He wrote that "irrational bubbles in stock prices are indistinguishable from rational, time-varying expected returns" (p. 1581).[11] In other words, you cannot tell if the market is rational or not. And recently, John Cochrane, another finance professor at the University of Chicago, said that "the central empirical prediction of the efficient markets hypothesis is precisely that nobody can tell where markets are going." (p. 2)[12]

Many people now believe that we can identify asset bubbles, although it is very hard to make money off them. And a lot of interesting research in economics over the past decade has been about why that is—why it is hard for professional money managers to play the role that they are supposed to in finance theory of arbitraging away mispricings and pricking bubbles. In addition, some people are wondering if the Federal Reserve and bank regulators can and should be doing something to tamp down bubbles. That is, if they are going to be bailing us out on the crash end, they need to be playing some role in the bubble stage.

So, I do not think the finance professors are totally right, that we have no way of knowing if markets are irrational or not. It is hard, but I think indications do exist, especially whenever leverage is involved.

Conclusion

So, are finance professors and their theories to blame for the financial crisis? They just cannot be because we have been having financial crises for a long time, and furthermore, so many other things were going on at the same time (e.g., massive political support for home ownership, almost beyond all reason; new technologies and financial innovations; the strange role of China in its very unbalanced trade and financial relationship with the United States). But have those theories been partly discredited by the financial crisis? Yes, I would say so, although it depends somewhat. If academics are just saying that the efficient market hypothesis means the market is hard to outsmart, then, no, it has not been discredited at all. But if academics are saying that the efficient market hypothesis means markets behave rationally, then they do not have good explanations for what went on the past couple of years.

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[10]Barbara Donnelly, "Efficient Market Theorists Are Puzzled by Recent Gyrations in the Market," *Wall Street Journal* (23 October 1987):7.

[11]Eugene F. Fama, "Efficient Capital Markets II," *Journal of Finance*, vol. 46, no. 5 (December 1991):1575–1617.

[12]John H. Cochrane, "How Did Paul Krugman Get It So Wrong?" Essay (16 September 2009): http://faculty.chicagobooth.edu/john.cochrane/research/Papers/#news.

Question and Answer Session

Justin Fox

Question: Does breaking the efficient market hypothesis into three forms (weak, semi-strong, and strong) affect your conclusions?

Fox: My issue with all those versions of the efficient market hypothesis is that none of them says anything about whether prices are right or not. Most finance academics have backed away from asserting that they have proven that prices are right. But there was a long period in the 1970s and 1980s when the belief was that in some scientific way, it had been proven that stock market prices in the United States were very close to fundamental values all the time.

I get a little frustrated with always going back to the three forms of the efficient market hypothesis. It is almost like there is a fourth version of the efficient market hypothesis that seldom gets stated clearly: The price meets all these tests; therefore, the price is right.

Question: To what extent might distortions to the rational market be caused by tax policy and other external factors?

Fox: Financial markets are very good at differentiating value between two similar assets. They are also pretty good at judging things that have happened a lot before. But there was not a real historical parallel for the push from Washington to get more people to own homes. So, financial markets did not do a good job of taking that into account.

Sometimes you hear the argument that there was no failure of markets at all, that it was purely all these government policies. My thought is, it is some of both. Government policies may have caused some behaviors that were not sustainable. But the markets failed to see that they were not sustainable.

Question: In February 2006, Robert J. Shiller said that U.S. housing prices were going to fall 30–50 percent in the next five years, but what tools did investors have to react to this bubble?

Fox: Shiller's argument was that we needed housing-linked securities so people could make bets against this bubble. In essence, he said that financial markets, from time to time, become wildly detached from reality, and his solution is to have even more financial markets, which is not necessarily wrong. But it could just be that markets are incomplete, which is what allows bubbles to form.

Question: Is it possible that markets are truly efficient in the long term, which could be an infinite period of time, but that, unfortunately, in the short term, they are irrational?

Fox: That's what a lot of the disagreement in finance has come down to. We all agree that over some period, the efficient market hypothesis is right—that prices on average are right. But if you are talking about that over a 100-year period, it is not useful to anybody in making investment decisions or regulatory decisions. That's the problem.

Question: What are your thoughts on some of the alternative theories about markets, like Andrew Lo's adaptive markets hypothesis or the complex adaptive systems that Michael Mauboussin talks about?

Fox: I think they are all really interesting, but they all are quite preliminary. They seem to be saying that markets are striving toward being right but are constantly getting thrown off track.

I heard my favorite new theory, from Myron Scholes, just recently: the man–dog hypothesis. He did not call it that; he just described it. Think about the markets as an economic man who is walking along with a dog on a leash. The dog has various behavioral tendencies. It is always pulling the markets away, but the economic man is walking the dog and is always pulling it back on the path. It goes off; he pulls it back on. It is a picture of being relatively efficient but going off track every once in a while.

But, as Scholes says, the big problem is that sometimes the leash breaks. The leash is liquidity. So, you suddenly have this moment when markets stop functioning. The dog goes running away, and once the economic man retrieves the dog, he is on a different path. So, you cannot say the market is reflecting fundamentals because it is creating the fundamentals.

Question: Are some markets efficient (like large-cap stocks and horse racing) and some markets inefficient (like small-cap stocks and yen trading)?

Fox: When you are talking about micro-efficiency (such as how good a job markets do of pricing similar assets), big, liquid markets (e.g., the U.S. stock market) do that better than some smaller, less liquid markets.

But the real question is, Are bigger, more liquid markets less subject to these occasional

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moments of irrational exuberance? I don't know about that. It seems like that is just a universal tendency of markets, no matter how well run they are.

Note that the U.S. stock market handled the financial crisis in late 2008 really well. Liquidity never disappeared. Trading continued. There were no sudden, utter collapses. In that sense, a less liquid market, which many of these markets for various debt securities turned out to be, was less efficient.

Question: Do some managers (such as Bill Miller, Warren Buffett, and Bruce Berkowitz) disprove the efficient market hypothesis without question?

Fox: In my book, I focused on Ed Thorp, who was the first black box quantitative manager, and Warren Buffett. They clearly show that there are always people who are very good at investing. In fact, you need those people to make markets work.

Remember that back in the formative days of the efficient market hypothesis in the 1960s, there were these go-go mutual fund managers who were beating the S&P 500 Index or the DJIA by 30 or 40 percentage points a year and who were hailed as geniuses. Several young finance scholars thought that such performance could not be real, so they carried out a risk-adjusted performance analysis and showed that these managers were frauds; they were just taking excessive risk. Three years later, the scholars were proved totally right. All these funds did worse than the market.

So, the academics came out of the 1960s with this belief that all these fund managers were frauds. Over time, they started getting acquainted with investors like Thorp and Buffett, who are more intellectually sophisticated than the manager who ran the average go-go fund in the 1960s.

Something that is important to keep in mind for Buffett is that he has structured his investment vehicle so he basically does not have to respond to his clients. He does not suddenly run short of cash when value investing is unfashionable because he is getting his cash from his operating companies, not from the people who buy Berkshire Hathaway stock. If you are really talented, then presumably, the absolute best investment setup is one where your customers have no input whatsoever into what you are doing. But it is almost impossible to get that situation.

Question: Do you know Fischer Black's thoughts on changes to the efficient market hypothesis?

Fox: Fischer Black died before I started working on the book, so I never got to meet him. But he gave a wonderful speech when he was president of the American Finance Association in which he said that he believed in the efficient market: I believe financial markets in the United States are efficient. What I mean by that is that most of the time, prices are within a factor of 2 of their fundamental value. And what I mean by "most of the time" is, perhaps, 90 percent of the time (p. 533).[13]

I don't know if these numbers are right, but I think this is a rational way to approach the efficient market hypothesis. As a long-run view of how the world works, this theory is a useful framework.

[13]Fischer Black, "Noise," *Journal of Finance*, vol. 41, no. 3 (July 1986):529–543.